

DOCUMENT RESUME

ED 327 601

UD 027 825

AUTHOR Reller, Dorothy J.
TITLE A Longitudinal Study of the Graduates of the Peninsula Academies. Final Report.
INSTITUTION American Institutes for Research in the Behavioral Sciences, Palo Alto, Calif.
SPONS AGENCY William and Flora Hewlett Foundation, Palo Alto, Calif.
REPORT NO AIR-40801-2/87-FR
PUB DATE 15 Feb 87
NOTE 65p.
PUB TYPE Reports - Research/Technical (143) -- Reports - Evaluative/Feasibility (142)

EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS Academic Education; Education Work Relationship; *High Risk Students; *High School Graduates; High Schools; High School Students; Longitudinal Studies; Mentors; Program Evaluation; Questionnaires; Relevance (Education); *School Business Relationship; Secondary Education; *Student Motivation; Technical Education

IDENTIFIERS California (Stanford); *High School Academies; Partnerships; *Peninsula Academies Program

ABSTRACT

The Peninsula Academies Program is a three-year high school program designed to provide at-risk students with the motivation to graduate from high school with skills relevant to future employment. The program combines a full schedule of academic and technical courses with "employability" training in a school-within-a-school setting. Based on a school-business partnership, the Academies program offers career-oriented field trips, guest speakers, employee mentors, and paid work experience in local companies to supplement the regular classroom work. Enrollment is limited to approximately 100 students at each of 2 participating schools across grades 10 through 12. This study seeks to determine the impact of the Peninsula Academies on graduates 15 and 27 months after high school completion. It focuses on the following four main areas: (1) employment experience; (2) educational experience; (3) usefulness of high school training; and (4) overall self-appraisal. The longitudinal study findings suggest that within a year or two after high school, Academy and non-Academy graduates were performing about equally well on most measures of employment achievement, and that their educational activities were also similar. Findings suggest that the program benefits its participants in many ways. The report includes 2 appendixes and a 20-item bibliography. (AF)

* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *

ED327601

A LONGITUDINAL STUDY OF THE GRADUATES OF THE PENINSULA ACADEMIES

Final Report

February 15, 1987

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)

- ☒ This document has been reproduced as received from the person or organization originating it.
- ☐ Minor changes have been made to improve reproduction quality.
- Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

Dorothy J. Reller

"PERMISSION TO REPRODUCE THIS
MATERIAL HAS BEEN GRANTED BY

Nancy K. Hull
American Institutes for Res.

TO THE EDUCATIONAL RESOURCES
INFORMATION CENTER (ERIC)."

This report was prepared by the American Institutes for Research
for the Stanford Mid-Peninsula Urban Coalition, Stanford, California

AIR-40801-2/87-FR

50 027 825

ACKNOWLEDGMENTS

The cooperation and assistance of all those involved in the Peninsula Academies program greatly facilitated the research on which this report and previous AIR reports on the Academies program are based. Ms. Hattie Harlow, former Executive Director of the Stanford Mid-Peninsula Urban Coalition, and Dr. Harry Reynolds, former Superintendent of the Sequoia Union High School District, worked together to make their concept of an Academies program a reality, and both the Coalition and the Sequoia District have continued their support of AIR's involvement in the program as providers of technical assistance and evaluation services. The Coalition supported the preparation of this report through a grant from the William and Flora Hewlett Foundation.

Valuable advice has been received from Ms. Sarita Berry, Executive Director of the Coalition; Dr. Joel Kaplan, Coalition Director of Educational Programs; and Mr. Charles Dayton, former Coalition Director of the Peninsula Academies. At the Sequoia Union High School District, the cooperation of the following individuals is gratefully acknowledged: Dr. Merle Fruehling, Superintendent; Mrs. Marilyn Raby, Director of Curriculum; Mr. William Vines, Director of Special Projects; Mrs. Joyce Rosenstiel, Principal of Menlo-Atherton High School; and Mr. Earl Walker, Principal of Sequoia High School. Special thanks are due to Mrs. Leslie Hurdy and Mr. Denis Losé, Chairpersons and lead teachers at the Electronics and Computer Academies, and to all the teachers, students, and private industry participants in the program.

At AIR, Dr. Paul Butler-Nalin's help with the data analysis is gratefully acknowledged. Many thanks, also, to Mrs. Irene Yurash for her help in collecting data and producing this report. Very special appreciation is expressed to Dr. Steven Jung, whose advice and counsel were indispensable during all phases of the project.

Dorothy J. Reller
Project Director

TABLE OF CONTENTS

I. INTRODUCTION	1
Background: The Peninsula Academies Program	1
Related Research	4
Findings of the Interim Longitudinal Report	6
Questions Addressed by the Longitudinal Study	7
II. DESCRIPTION OF THE LONGITUDINAL STUDY	9
Participants	9
Survey Questionnaire	12
Survey Procedure	12
Response Rates and Reasons for Non-Response	13
Analysis Design	15
III. SURVEY RESULTS	17
Overview	17
Results from Survey at 15 Months	17
Results from Survey at 27 Months	32
Summary of Respondents' Advice to Current High School Students	46
IV. DISCUSSION AND CONCLUSIONS	49
Discussion of Findings	49
Conclusions	54
Appendix A: American Institutes for Research Reports on the Peninsula Academies	57
Appendix B: Survey Questionnaires	59
Bibliography	63

I. INTRODUCTION

Background: The Peninsula Academies Program

The Peninsula Academies is a three-year high school program designed to provide at-risk students with the motivation to graduate from high school with skills relevant to future employment. The program combines a full schedule of academic and technical courses with "employability" training in a school-within-a-school setting. Based on a school-business partnership, the Academies program offers career-oriented field trips, guest speakers, employee mentors, and paid work experience in local companies to supplement the regular classroom work. The Sequoia Union High School District, assisted by the Stanford Mid-Peninsula Urban Coalition, started the program in the 1981-82 school year with an Electronics Academy at Sequoia High School and a Computer Academy at Menlo-Atherton High School. Enrollment is limited to approximately one hundred students at each school across grades 10, 11, and 12.

For five years (1981 through 1986), the American Institutes for Research (AIR) monitored the progress of the Peninsula Academies and evaluated the program's impact on its students in terms of their attitudes, attendance, grades, graduation rates, and job performance.¹ The evaluation showed that, on balance, the Academies made a positive impact on those students who stayed with the Academies for the complete three-year program.

The success of the program was recognized by the California legislature, which, in 1984, passed a bill to provide funding to school districts for replication of the Peninsula Academies model (AB3104, Sections 54690 through 54694 of the Education Code). Ten schools received funding and started new Academies during the 1985-86 school year. A preliminary assessment of these programs after one year showed that, when faithfully implemented, the Academies

¹ A listing of the AIR reports on the Peninsula Academies is included in Appendix A.

model was effective in a variety of school environments and with a variety of career training objectives.

The Peninsula Academies program was designed in response to two major educational problems of the 1980's: (1) an unacceptably high dropout rate, particularly among students from minority ethnic groups; (2) a high rate of unemployment among undereducated youths that threatens the economic health of the nation. About 30% of California youths who started high school between 1977 and 1981 did not graduate by age 18. For minority youths the noncompletion rate was higher; nationwide, in 1984, 40% of nonwhite students failed to earn diplomas, compared to 25% of white students. In 1984, the unemployment rate in California for 16 to 19 year olds was nearly 19%; for black youths it was 23% and for Hispanic, 32%.² Typically, these unemployed young people have either dropped out of high school or failed to complete enough credits to receive a high school diploma. Data from the National Longitudinal Surveys of labor market experience show that high school dropouts have an unemployment rate about twice that of high school graduates. At the same time, the number of jobs available for untrained, undereducated workers is rapidly declining. Traditional blue-collar jobs are being replaced by service jobs that pay less and yet often require more training. According to many economists, there is a growing mismatch between the training of potential workers and the skills employers will require. It is feared that unless the schools can stop the flow of high school dropouts and improve the quality and relevance of high school education, the threat of the United States becoming a two-tiered society of educated and illiterate, skilled and unskilled, prosperous and poor may become a reality before the end of this century.

There is evidence to suggest that the Peninsula Academies offers a model that can help alleviate some of these problems. The program serves students who are deemed "at-risk" on the basis of their ninth grade performance: poor

² Statistics on employment and school completion in California are from Youth Subcommittee of the California State Job Training Coordinating Council (1985). National Statistics are based on data from the National Longitudinal Survey, Department of Labor, reported in Borus, et al. (1980), and Employment and Training Reporter (1984).

attendance, achievement test scores that are one or two years below grade level, and a general lack of direction or enthusiasm for school, as noted by teachers and counselors. The AIR evaluation found that there were significant differences between the dropout rates of the Academy students and those of comparison students who had been identified as having similar profiles in 10th grade. In the 1985-86 school year, for example, 6% of the Academy 10th grade class dropped out of school, compared to 14% of the 10th grade Comparison group.

With regard to the problem of training and employment, the Academies curriculum is designed to infuse "employability" skills and values into the academic and technical courses. The courses in English, mathematics, and science are structured to give students a base of general knowledge that will allow them either to continue their education beyond high school or to become flexible, trainable employees, while the technical courses in electronics and computer operations teach students practical skills for entry-level technical jobs. To measure the effectiveness of this job training, AIR looked at the supervisors' evaluations for Academy students on their summer jobs and senior-year job placements. Between June 1983 and June 1986, 96 Academy students were placed in summer jobs and 107 were placed in spring semester work experience positions. Their supervisors rated them from 1 (poor) to 5 (outstanding) on 15 performance factors; they also gave each student an overall performance rating. Over the three-year period, the supervisor's average rating was 3.8 out of a possible 5 points. Student workers received consistently high ratings (4.0 and above) on punctuality, reliability, and attitudes. These ratings, plus positive comments from employers, suggest that the Academies program is successfully preparing young people for the job market.

The question remains whether the training the Academy students receive in high school enhances their employment opportunities after they graduate. More specifically, does it lead to employment, and if so, of what kind? Do the program graduates have an employment advantage over other young people from similar backgrounds who have had no special training in high school? The longitudinal study was designed to answer these questions.

Related Research

There have been a number of research studies over the years devoted to assessing the impact of high school vocational education on the employment patterns of high school graduates.³ John Bishop (1985) synthesizes the findings of a series of studies conducted by the National Center for Research in Vocational Education on the impact on labor market outcomes of various components of the high school experience. Using the High School and Beyond database (NCES), Bishop and others looked at the effects of in-school work experience, summer employment, vocational courses, and academic training on employment up to 21 months after high school graduation. They found that non-college-bound students who had taken four year-long vocational courses in high school were much more likely to be employed and to earn more than those who had taken one or fewer vocational courses. Bishop also reports that these effects increased between 3 and 21 months after graduation. On the other hand, other large-scale studies have shown few postsecondary benefits in the labor market for vocational education students.⁴

Although some of the research studies provide encouraging evidence for the importance of vocational education programs, most do not deal with special programs designed for a population of high school youths "at risk" of becoming school dropouts and/or unemployed. Most programs for "at risk" youth, and therefore much of the research on this population, involve training for the hard-core unemployed who have already left and do not intend to return to high school. These programs typically involve classroom vocational training, on-the-job training, or short courses in job search techniques. Burtless (1984), in a review of recent evaluations of such programs, reports that "...nearly all manpower strategies for the disadvantaged share the same characteristics; they raise the amount of time that workers spend employed,

³ Bishop, J. (1985); Borus, M., et al. (1980); Meyer, R. H., and Wise, D. A. (1982); National Center for Research in Vocational Education (1984); Nolfi, G. J., et al. (1978); and Redfering, D. L., & Cook, D. (1980).

⁴ Weisberg, A. (1983); Borus, M. E., et al. (1980); Rumbenger & Daymont (1984).

but have little effect on wages."⁵ The evaluations that Burtless summarizes were typically conducted only a few months after the training programs.

One of the few longitudinal studies of an employment training program for at-risk youth was conducted for "70001 Ltd.," a program of the U.S. Department of Labor, Office of Youth Programs, Employment and Training Administration. 70001 Ltd. is a national program that provides unemployed youth with approximately 32 hours of job readiness and educational training. Participants are between ages 16 and 21 and are nearly all high school dropouts. Public/Private Ventures (P/PV) surveyed about 500 program participants and 440 nonprogram youths at 24 and 40 months after program intake. (The comparison group was drawn from lists of registrants at job services offices in the same cities where 70001 operated.) P/PV found that "the effects in the 24 to 40 month post-intake period are near zero for the total sample..." in terms of employability, skill level, and earnings, although there was some positive impact on GED attainment.⁶

The 70001 program and most other youth employment programs differ from the Peninsula Academies program in several dimensions: they are shorter, less intensive, and, most important, they serve post-high school populations. But there is much research to suggest that an effective solution to the youth unemployment problem is most likely to be found within the high schools in programs that keep students in school by offering a combination of employability skills, vocational training, work experience, and, as in the case of the Academies, solid academic courses.

The Youth Subcommittee of the California State Job Training Coordination Council (1985) concluded that "there are no 'quick fixes' for the crippling problems of high-risk youth, and...most youth with such problems require extensive and prolonged assistance."⁷ If the schools can start early

⁵ Burtless, G. (1984), p. 22.

⁶ Public/Private Ventures (1983), p. ix.

⁷ Youth Subcommittee of the California State Job Training Coordination Council (1985), p. 15.

enough, and some researchers say that elementary school is not too soon, potentially "high risk" young people can be given enduring and marketable skills that will allow them to become productive members of society. For this reason, there is great interest in programs such as the Peninsula Academies.

Findings of the Interim Longitudinal Report

Results of a 15-month follow-up survey of the 1984 Academy⁸ graduates and Comparison group were reported by AIR in an Interim Longitudinal Report (1985). Responses to this survey were received from 74% of the 35 Academy graduates and 73% of the 15-member Comparison group. Briefly stated, the findings of this survey were as follows:

- There were no significant differences in the rates of employment for the two groups--about 80% of each group were employed either full- or parttime.
- There were no differences in the proportion attending school--about 40% of each group was attending some kind of postsecondary classes.
- Academy graduates were working more hours per week, earning higher hourly wages, and therefore were earning significantly more per week than the comparison group members.
- Academy graduates tended to be employed more frequently in entry-level technical jobs, while the majority of the Comparison group were employed as unskilled workers.
- 44% of the Academy graduates had found their jobs through the Academies; 33% of the Comparison group had found their jobs with some assistance from their high schools.
- Over 75% of the Academy graduates, compared to 36% of the Comparison group rated their high school courses as having prepared them "well" or "very well."
- 52% of the Academy graduates and 27% of the Comparison group rated themselves as doing "very well" since leaving high school.

⁸ In this report, the term "Academies" is used to refer to the Peninsula Academies program and "Academy" to designate program participants as contrasted with the Comparison group.

These findings suggest that the Academies had a positive and sustained effect on their participants. However, two factors should be kept in mind when considering this conclusion.

First, the first class of Academy students had an experience that was in many ways atypical of that of subsequent classes. They experienced many of the growing pains of a new program, specifically, for example, frequent changes of instructors and an underdeveloped curriculum, especially in the technical subjects. On the positive side, they were the recipients of a great deal of attention and interest from the private sector as well as from school personnel. They were singled out and made to feel that they had a special obligation to themselves and to the program to succeed. In other words, the Hawthorne effect was no doubt in operation, and the class of 1984 may not be typical Academies "products."

Second, the Comparison group for the class of 1984 was very small, with only 15 members to begin with and only 11 responding to the survey. Although these students were well matched to the Academy group, there is doubt about the validity the responses of so few people as a measure of program impact.

In a sense, each class of students in any program is unique. However, because the Academies' components were more solidly in place by the second and third years, the class of 1985 is probably more representative of the ongoing program. Also, the non-Academy group of 1985 is large enough to provide a valid comparison. Thus, the combined results of the first and second 15-month surveys should be more revealing of actual longitudinal impact of the program than those of the first survey alone.

Questions Addressed by the Longitudinal Study

The present study seeks to determine the impact of the Peninsula Academies 15 and 27 months after high school. It focuses on four main areas:

- employment experience
- educational experience
- usefulness of high school training
- overall self-appraisal

The study addresses the following questions:

Employment experience.

1. Did the Academies have an effect on the participants' rate of employment, including number of hours worked per week and job longevity?
2. Do Academy graduates have better jobs than Comparison youths, as measured by hourly and weekly wages, pay raises, complexity of jobs, and type of job? And to what extent are members of each group pursuing their high school career plans?
3. Has the first graduating class experienced significant advances in their jobs since 1984 in terms of wages, pay raises, job complexity, and type of job?

Educational experience.

1. Did the Academies have an impact on the graduates' likelihood of pursuing postsecondary education?
2. What kind of postsecondary education have graduates pursued, compared to the comparison group?
3. What are the educational aspirations of Academy and Comparison youths?
4. How have the educational aspirations of the 1984 Academy graduates changed since they first left high school?

Usefulness of high school training.

1. Do the ratings of their high school education by Academy and Comparison group survey participants differ, and if so, how?
2. Were Academy graduates helped by the program in finding jobs, and were the Comparison group participants given comparable assistance by their high schools?

Self-appraisal.

1. Is there a difference between the Academy and Comparison participants in their general sense of "doing well" since leaving high school?
2. Is there a difference in self-appraisal of the 1984 graduates at 15 and 27 months after high school graduation?

The methodology of the longitudinal study is described in Chapter II. Chapter III presents results of the surveys relevant to the above questions. In Chapter IV the findings are discussed and conclusions are presented.

II. DESCRIPTION OF THE LONGITUDINAL STUDY

Participants

The subjects of the longitudinal study were the 1984 and 1985 graduates of the Peninsula (Computer and Electronics) Academies and the members of their respective Comparison groups.

Class of 1984. The 35 graduates of the Computer and Electronics Academies classes of 1984 and 15 comparison students constituted the first follow-up group. The Comparison group was selected in the fall of 1982, at the beginning of 11th grade. At the time, 52 students were enrolled in the 11th grade Academies classes, and an attempt was made to identify within the district a comparison group of equal size, matching student for student on the basis of sex, ethnic background, grade level, feeder school attended, and 9th grade achievement test scores in reading and mathematics. Only 20 students could be identified who met the criteria. Toward the end of the 1984 school year, the 15 Comparison students who were still enrolled and the 35 students graduating with Academies certificates were invited to participate in the longitudinal study.

Class of 1985. The second follow-up group consisted of the Academy graduates from the class of 1985 and their Comparison group. These Comparison students had been selected at the beginning of 10th grade, when 72 new Academy students were entering the program. Seventy-two regular program 10th graders were identified, using the same criteria by which the 1984 Comparison group was selected. By the end of 12th grade, 53 of the Comparison group students were still enrolled in district schools, and 45 seniors were graduating with Academy certificates. These students were informed of the longitudinal study and invited to participate.¹

¹ The attrition from the two original comparison groups was due to dropping out of school and moving away. Attrition for the Academy groups was mainly due to their leaving the Academies to return to the regular school program; some attrition was also due to dropping out and moving away.

Table 2.1 shows a profile of the classes of 1984 and 1985 and their Comparison groups by sex, ethnic background, and average grade equivalent (g.e.) score on the Nelson Reading Test administered at the beginning of 9th grade.

Table 2.1
Profiles of Follow-up Groups, Academy and Comparison

	<u>Academy</u>			<u>Comparison</u>		
	Class of '84	Class of '85	Class of '84 & '85 Combined	Class of '84	Class of '85	Class of '84 & '85 Combined
N	35	45	80	15	53	68
Sex:						
Male	16 (46%)	25 (56%)	41 (51%)	7 (47%)	31 (58%)	38 (56%)
Female	19 (54%)	20 (44%)	39 (49%)	8 (53%)	22 (42%)	30 (44%)
Ethnicity:						
Hispanic	5 (14%)	4 (9%)	9 (11%)	3 (20%)	15 (28%)	18 (26%)
Black	19 (54%)	20 (44%)	39 (49%)	6 (40%)	18 (34%)	24 (35%)
Other						
Minority	1 (3%)	5 (11%)	6 (8%)	1 (7%)	1 (2%)	2 (3%)
White	10 (29%)	16 (36%)	26 (33%)	5 (33%)	19 (36%)	24 (35%)
Avg. g.e. Reading Score in Grade 9	7.2	8.9	8.0	7.9	8.4	8.3

Comments. Three caveats should be noted regarding the Comparison groups used in this study. First, these groups do not constitute "control" groups in the classic sense. That is, while the Comparison and Academy groups were matched as closely as possible on certain background characteristics, they were not randomly assigned to each group, as is required by a control group experimental design. Second, the study included only those members of the original Comparison groups who were still enrolled in high school in the spring of either 1984 or 1985 and who agreed to participate in the survey. School dropouts (except for those who had left and then returned to school)

were not included in the survey.² Third, the small size of the original 1984 Comparison group (and the even smaller number of respondents from that group) masks significant differences between the two groups in the survey results. Thus, it was not possible to estimate whether the first group of Academy graduates fared relatively better than they would have done without the program.

Ideally, the effects of the Academies program would be measured by comparing the post-high school experiences of participants with what these experiences would have been had they not been participants. Two alternative study designs would have been (1) to compare the post-high school experiences of students who dropped out of the Academies with those who completed the program, or (2) to follow up on all original Academy and Comparison students, including the program and school dropouts from both groups. However, it is doubtful that many of the Academy leavers would have participated in such a study, or that it would have been possible to locate high school dropouts from either group.³ It was decided that the best way to obtain a meaningful estimate of the program's effects would be to compare Academy and non-Academy students who persevered through four years of high school. This study design may underestimate the positive effects of the Academy program, since it does not take into account the possibility that without the program, the Academy students might have become dropouts, and it does not examine the experiences of the students who did drop out.

The longitudinal study, then, does not investigate the effects of dropping out on employment and education. What it does do is examine whether students exposed to three years of Academies special training have a different pattern of post-high school employment and educational experience from similar students

² Of the 20 original Comparison students from the class of 1984, 7 (35%) dropped out of school during the 1982-83 and 1983-84 school years. However, 2 had returned to school by June 1984, bringing the number of follow-up Comparison students to 15. Of the 72 original Comparison students for the class of 1985, 18 (25%) had dropped out of school and 1 had moved away between 1982-83 and 1984-85.

³ In the recent survey of high school dropouts attempted by the Stockton (CA) Unified School District, only 95 of 595 (16%) school leavers responded. (Keen, 1986).

who went through a regular high school program. It also traces the progress of the first class of Academy students for the first 27 months after graduation to see whether the program impact at 15 months was sustained.

Survey Questionnaire

In the fall of 1984, a short (15-item) questionnaire was used as a preliminary survey of the Academy and Comparison groups. The following year, separate forms of a survey questionnaire were developed for the Academy and Comparison groups. The same instruments were administered in 1985 and 1986. The questionnaire had 21 items, 12 related to employment experience, 8 related to educational experience, and 1 asking the respondent for advice to current high school students. The questionnaires used in the study are included as Appendix B.

The two versions of the questionnaire differed on three items, as follows:

- Item 6: How did you obtain this job?
Academy version includes "with help from the Academy program" as an additional option.
- Item 10: Is your current job the sort you were preparing for and planning on in high school?
Academy version asks if the current job is the sort the respondent prepared for/planned on "in the Academy" rather than "in high school."
- Item 19: As you look back over your high school years, how well do you think your courses prepared you for the work or schooling you are now doing?
Academy version asks how well the Academy courses prepared respondent for current activities, while Comparison version asks about high school courses in general.

Survey Procedure

Surveys were conducted in September-October of 1984, 1985, and 1986. The class of 1984 was surveyed three times--3, 15, and 27 months after high school--and the class of 1985 was surveyed twice--3 and 15 months after high school. Results from the 3-month survey of the class of 1985 are not included in the report.

During the interim periods between surveys, AIR staff kept in touch with the follow-up groups through letters, greeting cards, postcards, and the like in order to stimulate interest in responding to the survey. The survey schedules were approximately as shown in Figure 2.1.

Date	Activity
15 September	Mail questionnaires, with cover letters and postage-paid return envelopes
30 September	Second mailing to all non-respondents
6-30 October	Telephone calls to non-respondents
20-31 October	Postcards sent to non-respondents without telephones

Figure 2.1. Survey schedules, 1984, 1985, and 1986.

Parents and former Academy teachers were contacted for information on the current whereabouts of nonrespondents. In some cases, these individuals were able to contribute reliable information about the employment status of the non-respondents, and this information was included in the database.

Response Rates and Reasons for Non-Response

Table 2.2 shows the response rates for the 15-month and 27-month surveys, by class, for the Academy and Comparison groups. For the 3-month survey of the class of 1984, 91% of the Academy group and 73% of the Comparison group responded. For the 15-month survey of the class of 1984, 77% of the Academy group and 73% of the Comparison group responded. For the 15-month survey of the class of 1985, 84% of the Academy group and 58% of the Comparison group responded. And for the 27-month survey, 74% of the Academy group and 60% of the Comparison group responded.

Table 2.2

Profile of Respondents to 3-, 15-, and 27-Month Surveys
(N and %)

	<u>Academy</u>			<u>Comparison</u>		
	3-Month Survey Class of '84	15-Month Survey Combined '84 & '85 Classes	27-Month Survey Class of '84	3-Month Survey Class of '84	15-Month Survey Combined '84 & '85 Classes	27-Month Survey Class of '84
N	32	65	27	11	42	9
Sex:						
Male	15 (47%)	35 (54%)	12 (44%)	6 (40%)	25 (60%)	5 (56%)
Female	17 (53%)	30 (46%)	15 (56%)	5 (60%)	17 (40%)	4 (44%)
Ethnicity:						
Hispanic	5 (16%)	9 (14%)	5 (19%)	3 (27%)	11 (26%)	3 (33%)
Black	17 (53%)	28 (43%)	13 (48%)	4 (36%)	12 (29%)	1 (11%)
Other Minority	1 (3%)	6 (9%)	1 (4%)	0	2 (5%)	1 (11%)
White	9 (28%)	22 (34%)	8 (30%)	4 (36%)	17 (40%)	4 (44%)
Avg. g.e. Reading Score in Grade 9	7.9	8.3	7.2	8.2	8.2	8.1

The proportions of males to females and minority to non-minority group members were similar in the respondent and non-respondent groups. Similarly, respondents and non-respondents resembled each other on average reading achievement, as indicated by scores on the Nelson Reading Test administered in 9th grade. (These scores were among the factors by which Academy and Comparison groups were originally matched.) Chi square and t-tests showed that differences in the make-up of the responding and non-responding groups were probably due solely to chance. Thus, there does not appear to be any systematic response bias due to sex, race, or reading ability, and the Academy and Comparison respondents were probably as closely matched as the original groups to whom questionnaires were sent.

The most common reason for non-response was that the individual had moved, left no forwarding address, and did not have a listed telephone number in the mid-Peninsula area. For a small number of individuals, telephone numbers were

available, but no contact could be made, or else the participants were reminded by telephone to respond, but failed to do so. Finally, two students from each group declined to participate. The comparison graduates and one of the two Academy graduates gave no reason for refusing, but the other said that the Academy had not helped her and had been a "waste of time."

Analysis Design

The survey responses were analyzed in two ways: Academy and Comparison group responses were compared, and responses from the Academy class of 1984 at three data collection points were compared. Responses were analyzed to identify significant differences between either independent or matched groups. For the Academy-Comparison group analyses, responses were grouped by number of months out of high school, rather than by year of graduation. That is, responses from the two 15-month surveys were combined for the classes of 1984 and 1985.⁴ Figure 2.2 shows how the survey data were grouped for these analyses.

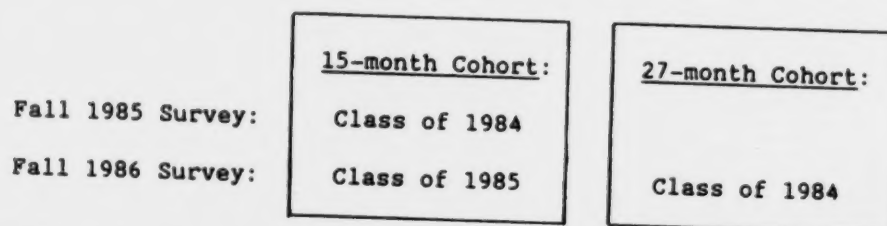


Figure 2.2. Data analysis groupings for Academy-Comparison group analyses.

The 15-month cohort consisted of 65 Academy respondents and 42 Comparison respondents, and the 27-month cohort consisted of 27 Academies respondents and 9 Comparison respondents. Not all respondents answered every questionnaire item, which accounts for the different N's in the results section which follows.

⁴ Contrary to our original expectation, t tests showed no significant differences between the responses at 15 months of the classes of 1984 and 1985.

For the Academy-only analyses, responses from the class of 1984 graduates at 3 and 27 months and at 15 and 27 months were compared. Only the graduates who responded to both of the surveys in question were included in each of these analyses.

III. SURVEY RESULTS

Overview

The group of recent high school graduates who participated in the longitudinal study had, for the most part, gone straight from high school into near fulltime employment. At the same time, most had aspirations to continue their education beyond high school. Many were enrolled in community colleges, special certificate programs, technical schools, and even four-year colleges. They frequently were either alternating semesters of work and school, or else were holding down jobs while attending school parttime.

In analyzing the results of the 15- and 27-month surveys, we compared the experiences of the Academy and Comparison respondents and found that their post-high school experiences were remarkably similar. However, significant differences were found on some indicators, and these tended to favor the Academy group. In this chapter, results from the two surveys are presented separately, and statistically significant differences are noted. The chapter concludes with a summary of the respondents' advice to current high school students.

Results from Survey at 15 Months

Responses from the two 15-month surveys were combined and are reported in this section. The employment and educational experiences of the Academy and Comparison groups are shown, as well as their ratings of their high school preparation and their appraisals of their own personal achievement.

To summarize the findings that follow: significant differences between the Academy and Comparison groups were discovered in job complexity, type of job, proportion that had been enrolled in postsecondary education programs, ratings of the quality of high school education, continuation of high school career goals, and sources of job search assistance. However, no statistically

significant differences were found between the two groups in terms of employment status, hours worked, wages, raises, term of employment, postsecondary enrollment patterns, educational aspirations, or rating of personal achievement.

Effects of Gender and Race on Responses

When 15-month responses were analyzed by group for variation by gender, some significant differences were found. That is, males and females from the Academy group differed in some respects compared to males and females in the Comparison group. However, White, Hispanic, Black, and other minority group members in both groups gave approximately the same patterns of responses. Therefore, in the tables that follow, responses are presented by Academy and Comparison group without regard to race categories, while gender categories are included in the tables when sex accounts for significant differences between the Academy and Comparison groups.

It should be noted that there were some statistically significant differences in responses by gender, regardless of group. When responses from Academy and Comparison group participants were combined, the average hourly wage for males at 15 months was \$7.31, while for females it was \$5.70, a significant difference of \$1.61 per hour ($p < .01$). Moreover, the male respondents reported larger pay raises than the females (\$1.61 compared to \$.52), again significant at $p < .01$. Males also worked more hours per week than females--38 compared to 34 hours ($p < .05$). There were no sex differences, however, on other measures of employment, education, or opinion.

Employment Experience

Employment status. Table 3.1 shows the responses of the Academy and Comparison respondents regarding their employment status at the time of the survey.

Table 3.1

Employment Status of Academy and Comparison Respondents,
at 15 months
(N and %)

Group	N	Employed		Unemployed	
		Fulltime	Parttime	Seeking Work	Not Seeking
Academy	65	39 (60%)	18 (28%)	6 (9%)	2 (3%)
Comparison	42	25 (60%)	10 (24%)	4 (10%)	3 (7%)

There were no significant differences in rate of employment. If we discount the five respondents who were not seeking employment, we find that of the respondents who were actively in the job market, 90% in each group were employed.

Of the six Academy respondents who were seeking employment, four were enrolled in school fulltime, one was enrolled parttime, and one was not enrolled. Of the four comparison respondents seeking employment, two were enrolled fulltime and two were not enrolled.

Hours worked. Table 3.2a shows a frequency distribution of hours worked per week by each group of employed respondents, and 3.2b compares the average number of hours worked per week by group and by sex.

Table 3.2a

Frequency Distribution of Hours Worked Per Week
Academy and Comparison Respondents at 15 Months
(N and %)

Group	N	Number of Hours Worked			
		1-19	20	34	35+
Academy	49	1 (2%)	13 (27%)	35 (71%)	
Comparison	31	1 (3%)	10 (32%)	20 (65%)	

There was no significant difference between the number of hours worked by the two groups.

Table 3.2b

Average Number of Hours Worked Per Week
Academy and Comparison Respondents by Sex

<u>Group</u>	<u>(N)</u>	<u>Females</u>	<u>(N)</u>	<u>Males</u>	<u>(N)</u>	<u>Total</u>
Academy	(22)	35.61	(27)	36.74	(49)	36.23
Comparison	(15)	31.10	(16)	40.06	(31)	35.73
Both	(37)	33.78*	(43)	37.98*	(80)	36.04

* Difference significant at $p < .05$.

As Table 3.2b shows, there was a significant difference in hours worked between males and females overall. In the Comparison group, male-female differences also approached statistical significance. However, in the Academy group, males and females worked approximately the same number of hours per week.

Wages. Figures 3.1 and 3.2 show frequency distributions of hourly and weekly wages for Academy and Comparison respondents. The average hourly wage for Academy respondents was \$6.62 and for Comparison respondents, \$6.57. The average weekly wage for Academy respondents was \$228.04 compared to \$203.83 for the non-Academy group. Although this is an economically important difference amounting to about \$100 per month, statistically there were no significant differences between the wages earned by the two groups.

Raises. Figure 3.3 shows a distribution of size of pay raises received by employed respondents from each group. Raises represent the difference between the respondents' current hourly wages and the earliest reported starting wage since leaving high school. In most cases, the starting wage was from the same employer where the respondent was currently employed.

Figure 3.1
Frequency Distribution of Hourly Wages
Academy and Comparison Respondents
(at 15 months)

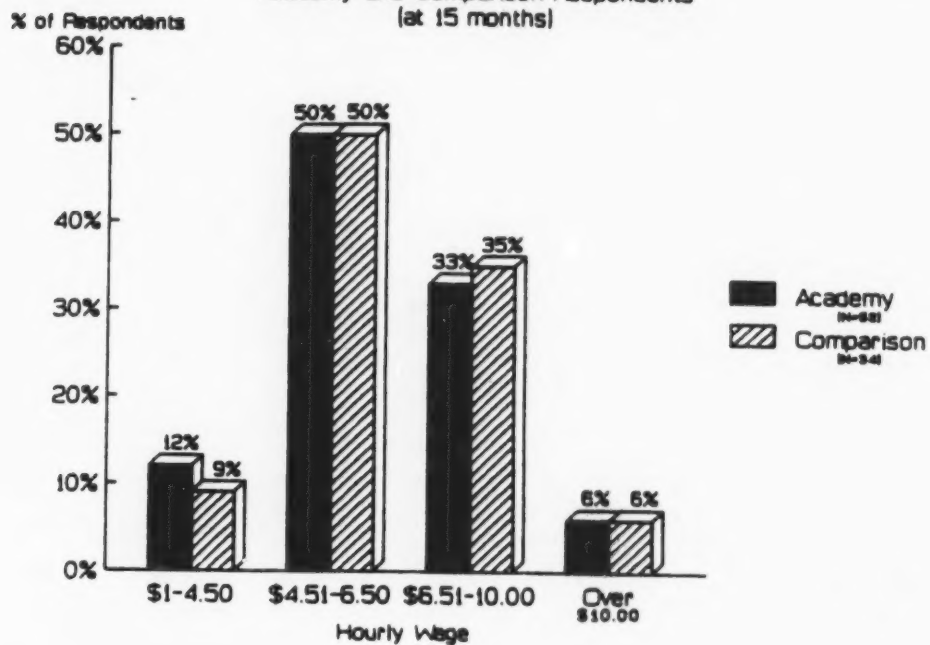


Figure 3.2
Frequency Distribution of Average Weekly Wages
Academy and Comparison Respondents
(at 15 months)

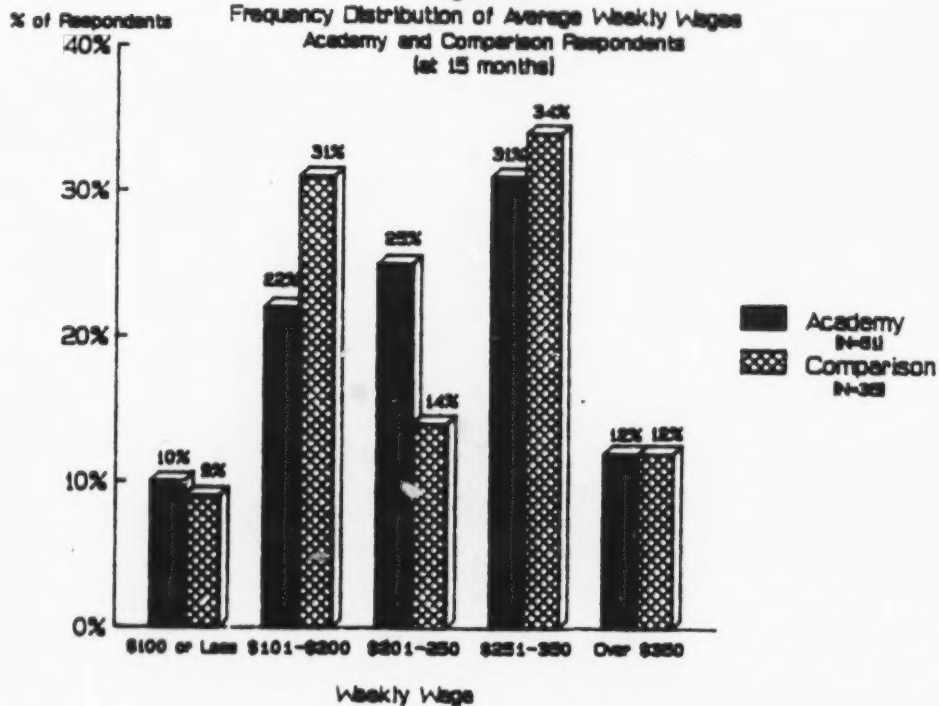
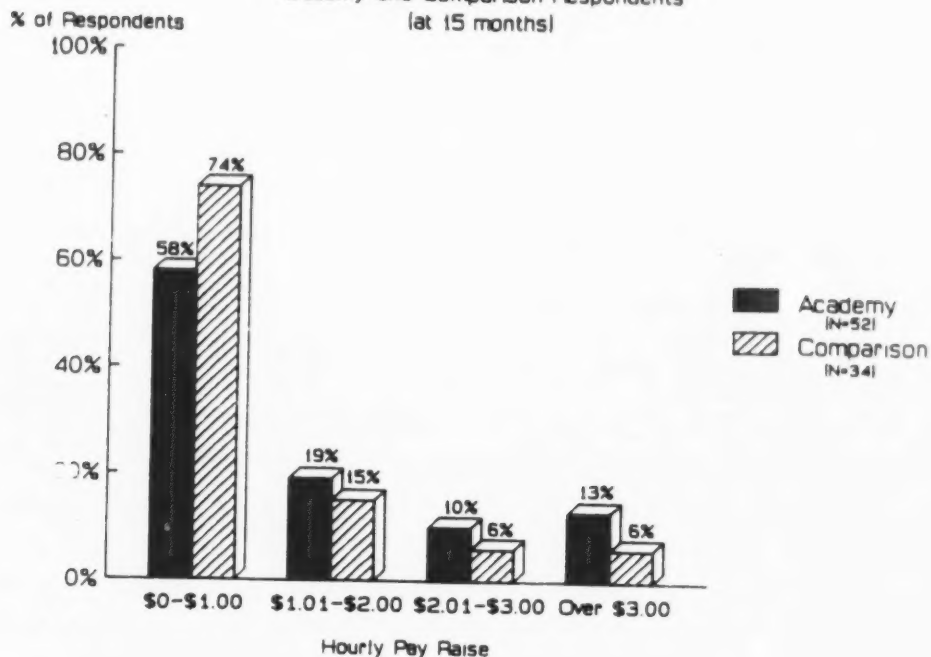


Figure 3.3
Hourly Pay Raises
Academy and Comparison Respondents
(at 15 months)



Academy respondents had an average hourly pay raise of \$1.28 compared to \$.86 for the Comparison group, an impressive but statistically not significant difference. An analysis by sex showed that males on the average received raises of \$1.61 per hour, significantly more than females at \$.52 per hour ($p < .01$). This difference held for both Academy and Comparison respondents.

Term of employment. Respondents were asked the date on which they began working for their current employer. The number of months on the job was calculated as the time between that date and September 15, 1985 or 1986, depending on the year of the 15-month survey. Any starting dates prior to high school graduation were counted as a June 15, 1984 or 1985 start, so that the maximum possible term of employment was 15 months.

Table 3.3

Term of Employment with Current Employer and Average Number of Months,
Academy and Comparison Respondents at 15 Months

Group	N	Number of Months				Average Number of Months
		1-3	4-9	10-14	15	
Academy	54	12 (22%)	13 (24%)	11 (20%)	18 (33%)	9.09
Comparison	33	10 (30%)	8 (24%)	7 (21%)	8 (24%)	8.26

Again, the difference between the Academy and Comparison groups was not statistically significant. Of the 18 Academy respondents who had been employed by the same employer since graduation, 61% had found their jobs through the Academies.

All female respondents (Academy and Comparison) had been employed fewer months than males (7.6 compared to 10 months on the average), and these differences were observed within both Academy and Comparison groups.

Job complexity. A job complexity index was created by assigning a complexity rating to each job, following the system used by the Dictionary of Occupational Titles (Department of Labor). Each rating had three parts, ranking the job as it pertains to data, people, and things. The lower the rating, the more complex the job. The rating scale for each category is as follows.

DATA	PEOPLE	THINGS
0 Synthesizing	0 Mentoring	0 Setting Up
1 Coordinating	1 Negotiating	1 Precision Working
2 Analyzing	2 Instructing	2 Operating-Controlling
3 Compiling	3 Supervising	3 Driving-Operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking-Signalling	6 Feeding-Offbearing
	7 Serving	7 Handling
	8 Taking Instructions- Helping	

Table 3.4 shows the average complexity ratings for each category, by responding group and by sex.

Table 3.4

Average Job Complexity Ratings,
Academy and Comparison Respondents by Sex at 15 Months

Group	N	Average Data Rating	Average People Rating	Average Things Rating
<u>Academy</u>				
Total	50	3.96	6.48	3.60**
Females	21	3.90*	6.33**	3.90
Males	29	4.00*	6.59**	3.38
<u>Comparison</u>				
Total	32	3.97	6.69	5.19**
Females	16	3.20*	6.13**	4.94
Males	16	4.69*	7.25**	5.19

* Difference significant at $p < .05$.

** Difference significant at $p < .01$.

The group-by-sex complexity ratings for "Data" show that while Academy males and females had jobs of about equal complexity, the Comparison group males held jobs with considerably higher ratings (that is, less complex) than Comparison females. On the "People" dimension, females in both the Academy and Comparison groups held significantly more complex jobs than did males; however, there were no significant differences when both sex and group were considered. For "Things" job complexity, there were no differences by sex, but overall the Academy group had significantly more complex jobs than the Comparison group.

Educational Experiences

Enrollment. Table 3.5 shows the pattern of postsecondary school enrollment at 15 months. Respondents had to be enrolled in a minimum of three courses at the time of the survey to be considered "fulltime."

Table 3.5

Enrollment in Postsecondary Education
Academy and Comparison Respondents at 15 Months

Group	N	Fulltime	Parttime	Not Enrolled at Time of Survey	Both Enrolled and Employed
Academy	61	22 (36%)	16 (26%)	23 (38%)	31 (51%)
Comparison	38	13 (34%)	5 (13%)	20 (53%)	13 (34%)

As the above table shows, although about the same proportion of Academy and Comparison respondents were enrolled fulltime, a much larger proportion of Academy respondents was enrolled parttime, and a much smaller proportion was not enrolled at all. Also, proportionally more Academy than Comparison respondents were both working and going to school, the difference between groups approaching statistical significance ($p < .10$).

Table 3.6 shows the type of postsecondary programs in which the two groups of respondents were currently enrolled or in which they had been enrolled at some time during the 15 months since graduation. Program types are defined as follows:

- Miscellaneous: One or more courses not related to any degree or certificate (example: a welding course at a vocational school)
- Certificate: Courses leading to a vocational certificate in 1 or 2 years (example: a 9-month course in microwave technology)
- Technical: Courses leading to a 2, 3, or 4 year degree in a technical area (example: courses at a technical institute or college)
- AA: Two-year Associate of Arts program
- BA: Four-year Bachelor's degree program at a college or university
- Not Enrolled: No postsecondary enrollment since high school graduation

Table 3.6

Type of Postsecondary Program
Academy and Comparison Respondents
During First 15 Months after High School

Group	N	Miscel- laneous	<u>Program Type</u>				Never Enrolled
			Certificate	Technical	AA	BA	
Academy	59	6 (10%)	2 (3%)	8 (14%)	26 (44%)	4 (7%)	13 (22%)*
Comparison	39	3 (8%)	2 (5%)	1 (3%)	18 (46%)	2 (5%)	13 (33%)*

* Difference significant at $p < .01$.

The main differences in enrollment patterns were that a much larger proportion of Academy graduates were enrolled in technical schools, and that one-third fewer Academy than Comparison graduates had never enrolled. This difference in the proportion who had never been enrolled is statistically highly significant.

Educational aspirations. Table 3.7 compares the educational aspirations of the two groups of respondents. The questionnaire asked participants to check the highest level of education they expected to complete.

Table 3.7

Educational Aspirations
Academy and Comparison Respondents at 15 Months

Group	N	High School	<u>Expected Highest Level of Education</u>				Don't Know
			Vo/Tech Certif.	2-Year Degree	4-Year Degree	Graduate Degree	
Academy	59	4 (7%)	8 (14%)	16 (27%)	20 (34%)	6 (10%)	5 (8%)
Comparison	39	4 (10%)	5 (13%)	8 (21%)	17 (44%)	3 (8%)	2 (5%)

There were no appreciable differences between the aspirations of the two groups.

Retrospection on High School

High school preparation. Table 3.8 shows how the respondents rated the quality of their high school education in terms of how well they felt it had prepared them for their present work or school.

Table 3.8

Ratings of High School Preparation
Academy and Comparison Respondents at 15 Months

Group	N	(1) Extremely Well	(2) Well	(3) Just OK	(4) Not Very Well	(5) Very Poorly	Average Rating
Academy	59	13 (22%)	25 (42%)	14 (24%)	6 (10%)	1 (2%)	2.27
Comparison	39	6 (15%)	8 (21%)	19 (49%)	3 (8%)	3 (8%)	2.72

The difference between the ratings of the two groups is significant ($p < .05$). Whereas almost two-thirds of the Academy respondents said their high school training had prepared them well or extremely well, only one-third of the Comparison group gave similar ratings.

Employed respondents were asked if there were any skills they wished they had acquired in high school that would help them on their present jobs. Of the 52 Academy respondents to this question, 23 (44%) replied in the affirmative, and of the 30 Comparison respondents, 8 (27%) did so. Table 3.9 list the courses that 15-month respondents said would help them on their current jobs.

Table 3.9

Courses Not Taken That Would Have Helped On Current Job
Academy and Comparison Respondents at 15 Months

Course	Academy (23 respondents)	Comparison (8 respondents)
Mathematics	9	3
Typing	5	2
Computer use	2 (a)	1
Advanced computer applications	1	
Beginning electronics	1 (b)	
Advanced circuits and diagram reading	1	
Personal communications	1	1
English	1	1
Science	1	
Spanish	1	
Economics		1
Career planning		1
Other vocational:	3	2
	Drafting	Metal shop.
	Auto mechanics	Wood shop
	Accounting	

(a) mentioned by Electronics Academy graduates
(b) mentioned by Computer Academy graduate

Pursuit of high school career goals. Of the Academy respondents who were employed in civilian jobs at the time of the 15-month survey, 20 (40%) said their jobs were the sort they were planning on and preparing for in the Academy; 30 (60%) said they were not. However, of the 49 respondents who gave information on future career plans, 69% mentioned careers related to electronics or computers.

Seventeen (31%) of the 15-month Academy respondents were working for local "high tech" companies (companies whose major products relate to electronics and/or computers). The high tech employers were: Hewlett-Packard, Kevex Corporation, Litton Industries, National Semiconductor, Raychem, Sigma Circuits, Spectra-Physics, TSSI Electronics, Varian Associates, and Xerox Corporation. Five respondents (9%) were in the military or the California Conservation Corps, and the rest (65%) were working for a variety of businesses including: two (4%) each at Syntex, Stanford University, the U.S. Geological Survey (all

sponsors of the Peninsula Academies), and a fast-food restaurant; 9 (17%) at retail stores; and 3 (6%) at construction companies. The remainder were employed in 19 different kinds of businesses around the mid-Peninsula.

Of the 32 Comparison group respondents who were employed at civilian jobs, 23% had the sort of jobs they had planned for while in high school, and 77% did not. (Many Comparison respondents commented that they had made no career plans or preparation in high school.) Of the employed respondents, two were working for the computer/electronics industry (at Raychem and NTI Electronics), three (9%) were in military service, and the rest were employed at 30 different Bay Area businesses.

The Academy and Comparison respondents were employed in a wide variety of occupations, as shown in Table 3.10 on the following page. As the table shows, the former Academy students tended to be clustered in retail trade, electronics jobs, computer-related work, and other office jobs, in that order. The Comparison respondents were mainly employed in office jobs, retail trade, construction jobs, and other services.

Job placement assistance. Respondents were asked to indicate the primary source of help they relied upon to find their current jobs. Table 3.11 shows responses at 15 months.

Table 3.11

Primary Resources for Obtaining Job
Academy and Comparison Respondents at 15 Months

<u>Resource</u>	<u>Academy</u>	<u>Comparison</u>
Own initiative	24 (47%)	21 (62%)
Family	9 (18%)	4 (12%)
Friends	3 (6%)	3 (9%)
Academy program	14 (27%)	N/A
Other high school program	--	5 (15%)
Other	1 (2%)	1 (3%)

Table 3.10

Occupations of Academy and Comparison Respondents at 15 Months
(N and %)

<u>Occupation</u>	<u>Academy</u> (N=54)	<u>Comparison</u> (N=35)
<u>Electronics</u>		
test technician	5 (9%)	
electronics/computer repair	2 (4%)	
assembler	4 (7%)	
warehouse manager	1 (2%)	
circuit-board plater		1 (3%)
<u>Computer-related</u>		
computer operator	5 (9%)	
data entry processor	2 (4%)	
service call dispatcher		1 (3%)
<u>Technical</u>		
laser printing technician	1 (2%)	
laboratory technician	2 (4%)	
<u>Office</u>		
secretary/clerk	6 (11%)	3 (9%)
receptionist	1 (2%)	2 (6%)
mailroom person		1 (3%)
consumer relations representative		1 (3%)
public relations assistant		1 (3%)
teller		1 (3%)
<u>Retail Trade</u>		
cashier/clerk	9 (17%)	6 (17%)
manager	2 (4%)	2 (6%)
meat clerk	1 (2%)	
<u>Delivery</u>		
driver/deliveryman	3 (6%)	3 (9%)
<u>Construction</u>		
carpenter	1 (2%)	
house painter	1 (2%)	1 (3%)
laborer		4 (11%)
electric groundsman		1 (3%)
<u>Other Services</u>		
child care worker	1 (2%)	1 (3%)
security guard	1 (2%)	
waitress		1 (3%)
locksmith		1 (3%)
entertainer (Marine World)	1 (2%)	
aerobics instructor		1 (3%)
<u>Military Service</u>	5 (9%)	3 (9%)

Personal Achievement

Respondents rated themselves on how well they were doing overall since finishing high school. Responses are shown in Table 3.12a and 3.12b.

Table 3.12a
Ratings of Personal Achievement
Academy and Comparison Respondents at 15 Months

Group	N	(1) Very Well	(2) Fairly Well	(3) Just OK	(4) Not Very Well	(5) Poorly
Academy	58	21 (36%)	26 (45%)	9 (16%)	2 (3%)	--
Comparison	38	11 (29%)	16 (42%)	10 (26%)	1 (3%)	--

Table 3.12b
Average Ratings of Personal Achievement
by Group and by Sex at 15 Months

Group	(N)	Female	(N)	Male	(N)	Total
Academy	(26)	2.00*	(32)	1.75*	(58)	1.86
Comparison	(16)	1.69*	(22)	2.27*	(38)	2.03

* Group-by-sex differences are significant at $p < .01$

A slightly larger proportion of Academy students felt they were doing "fairly well" or "very well," but overall, the differences between the groups were not significant. However, as Table 3.12b shows, there was a significant difference ($p < .01$) in personal achievement ratings of the Academy and Comparison groups when sex was taken into consideration. The variation is due to the fact that Academy males rated their achievement much more positively than the Comparison males, while the opposite was true for the females.

Results from Survey at 27 Months

Findings from the survey conducted 27 months after high school (September-October 1986) are presented in two ways. First, all responses from the Academy class of 1984 are compared with all responses from their Comparison group. Unfortunately, only 9 members of the 1984 Comparison group responded to the 27-month survey. (Because of the small number of Comparison respondents, few of the differences found between the two groups were statistically significant.) Second, the responses from the Academy group are compared to their own responses on the previous surveys. That is, we compared the responses of those who completed the questionnaires at both 3 and 27 months and also of those who responded at both 15 and 27 months. These two sets of respondents do not completely overlap, since not everyone who responded at 27 months also responded to both previous surveys. The purpose of the longitudinal comparison was to see if Academy graduates' experiences and opinions changed significantly over time.

Findings are reported for employment experience, educational experience, retrospection on high school training, and self-appraisal of personal achievement.

Summarizing briefly the 27-month results: significant differences were found favoring the Academy over the Comparison respondents in the size of wage increases received and in their educational aspirations at 27 months. There were also notable differences in the types of jobs held and how these jobs were found. No significant differences were found between the two groups in employment status, hours worked, wages, term of employment, job complexity, postsecondary enrollment patterns, ratings of high school education, or ratings of personal achievement.

For the most part, there were no substantial changes in the responses of the Academy graduates at 3, 15, and 27 months. The only statistically significant change was a shift away from parttime school enrollment between 15 and 27 months, toward either no enrollment or fulltime enrollment. This is an indication that these youths have tended to alternate between attending school and working.

Effects of Gender and Race on Responses

Few differences existed between the responses at 27-months of males and females or of the minority and nonminority respondents.

Tests of statistical significance showed that there were no differences between the responses of minority and nonminority group Academy respondents on any of the dimensions relevant to the study--employment, education, or self-ratings. Unlike the situation at 15 months, there were no statistically significant differences between male and female respondents in employment status, wages, hours worked, or length of employment. In job complexity, however, female respondents showed significantly more complex jobs than males on the "things" index; there were no differences in the "people" or "data" indices.

No differences were found between the educational aspirations of male and female Academy respondents, nor in their ratings of high school education and personal achievement. However, females were much more likely to be enrolled in postsecondary education. At the time of the 27-month survey, 75% of the female Academy respondents, compared to 33% of the males, were enrolled ($p < .05$). There were no significant group-by-sex differences.

Employment Experience

Employment status. Table 3.13 shows the employment status of the Academy and Comparison respondents.

Table 3.13

Employment Status of Academy and Comparison Respondents,
at 27 months
(N and %)

Group	N	Employed		Unemployed	
		Fulltime	Parttime	Seeking Work	Not Seeking
Academy	27	15 (56%)	3 (11%)	3 (11%)	6 (22%)
Comparison	9	3 (33%)	2 (22%)	2 (22%)	2 (22%)

Counting only those respondents who were either employed or seeking employment, we can consider 21 Academy and 7 Comparison respondents to be in the job market. On this basis, 86% of the Academy group and 71% of the Comparison group were employed; 14% and 27%, respectively, were unemployed. Of the three unemployed Academy respondents seeking work, two were fulltime students and one was not in school. The two Comparison group respondents who were unemployed and seeking work were both enrolled in school parttime.

Table 3.14 shows the employment status of the group of Academy respondents in September 1984 (at 3 months) and September 1986 (27 months); Table 3.15 gives the same information for the respondents at 15 and 27 months after high school.

Table 3.14

Employment Status of Same Academy Respondents
at 3 and 27 months
(N = 23)

Time	Employed		Unemployed	
	Fulltime	Parttime	Seeking Work	Not Seeking
3 months	13 (57%)	4 (17%)	3 (13%)	3 (13%)
27 months	13 (57%)	2 (9%)	3 (13%)	5 (22%)

Table 3.15

Employment Status of Same Academy Respondents
at 15 and 27 months
(N = 22)

Time	Employed		Unemployed	
	Fulltime	Parttime	Seeking Work	Not Seeking
15 months	16 (73%)	2 (9%)	4 (18%)	--
27 months	11 (50%)	3 (14%)	2 (9%)	6 (27%)

Contingency analyses showed that while there were changes in the employment status of some individual respondents, overall there were no statistically significant shifts, either between 3 and 27 months or between 15 and 27 months.

Hours worked. Table 3.16 shows a frequency distribution of hours worked per week by responding Academy and Comparison group members.

Table 3.16

Frequency Distribution of Hours Worked Per Week
Academy and Comparison Respondents at 27 Months

Group	N	Number of Hours Worked			Average Number Hours/Week
		1-19	20-34	35+	
Academy	16 ^a	1 (6%)	2 (13%)	13 (81%)	37.88
Comparison	5	0	2 (40%)	3 (60%)	39.60

^a Although 18 Academies graduates were employed, only 16 provided information on hours worked.

Table 3.17 shows the average number of hours worked per week by the respondents to the 3- and 27-month surveys and the 15- and 27-month surveys. These averages also include the unemployed respondents who were seeking work.

Table 3.17

Average Number of Hours Worked per Week
Academy Respondents

Survey	N	Average Number of Hours	Value of t
3 mos.	12	32.83	.19
27 mos.		34.17	
15 mos.	13	41.15	1.51
27 mos.		34.46	

The differences between the average hours worked at each of the two survey points are not statistically significant.

Wages. About two-thirds of the Academy respondents and half the Comparison respondents who were working were earning between \$6.51 and \$10.00 per hour. The average hourly wage for the Academy group was \$7.34 and their average weekly wage was \$287.90. For the Comparison group, the average hourly

wage was \$5.64 and the weekly wage, \$194.82. Although the average hourly and weekly earnings of the Academy respondents appear to be considerably higher, the differences are not statistically significant due to the small size of the Comparison group.

Tables 3.18 and 3.19 show the Academy class of 1984 respondents' average hourly and weekly earning, again by subgroups of respondents at 3 and 27 months, and at 15 and 27 months. These averages include those seeking employment.

Table 3.18

Average Hourly Wages of Same Academy Respondents

Survey	N	Average Wage	Value of t
3 months	12	\$5.45	.43
27 months		\$6.38	
- - -	-	-	-
15 months	13	\$6.97	.67
27 months		\$6.56	

Table 3.19

Average Weekly Wages of Same Academy Respondents

Survey	N	Average Wage	Value of t
3 months	11	\$202.22	.87
27 months		\$259.53	
- - -	-	-	-
15 months		\$287.34	.33
27 months		\$271.93	

There was a large variation in wages between individuals, and in neither time period was there a significant, or non-chance, difference in hourly or weekly wages.

Raises. About half the respondents from both the Academy and the Comparison groups had received pay raises of over \$2.00 per hour since they started working after high school. Raises were calculated as the difference between the current hourly wage and the reported starting wage for that individual at either 3, 15, or 27 months, whichever was the earliest time reported. Considering only the Academy respondents, the average reported starting wage was \$5.04 per hour and the average wage at 27 months was \$7.34. The difference between the starting and current salaries for these individuals is significant ($p < .01$).

Term of employment. Respondents were asked the date on which they began working for their current employer. From this, we calculated the number of months on the job, starting from June 15 of the year of graduation, up to September 15 of the survey year. (Time on the job during high school was not counted.) Thus, for the class of 1984, the maximum possible months on the job were 15 and 27 months respectively for the 1985 and 1986 surveys.

There were no significant differences in term of employment of Academy and Comparison respondents. At 15 months, the Class of 1984 Academy respondents had held their current jobs for an average of 9.8 months and the Comparison respondents for an average of 9.4 months. At 27 months, the average was 19.8 months for Academy and 14.2 months for Comparison respondents. At the time of the 27 month survey, 47% of the Academy respondents had held their current jobs for 27 months. Of this group, 75% had found their jobs through the Academy program.

Job complexity. Each respondent's job at 15 and 27 months was assigned a job complexity rating as described earlier in this chapter under the 15-month findings (page 23). Table 3.20 shows the average job complexity rating in terms of "data," "people," and "things" for the Academy and Comparison respondents at 27 months. The lower the rating, the more complex the job.

Table 3.20

Average Job Complexity Rating Academy and Comparison Respondents at 27 Months				
Group	N	Data Rating	People Rating	Things Rating
Academy	16	3.94	7.75	3.69
Comparison	6	3.83	7.00	4.67

Differences between the two groups were not significant.

Table 3.21 compares the average job complexity ratings of the same Academy respondents at 15 and 27 months. Only nine respondents had scores for both data points.

Table 3.21

Average Job Complexity Indices for Same Academy Respondents				
Survey	N	Data Rating	People Rating	Things Rating
15 months	9	5.78	4.44	4.22
27 months		6.44	4.00	4.00

The complexity indices show that these Academy respondents held jobs with similar complexity levels at the time of both surveys.

Educational Experience

Enrollment. Table 3.22 shows the pattern of postsecondary school enrollment of Academy and Comparison respondents. A respondent was considered enrolled only if he or she was attending classes at the time of the survey, regardless of previous or planned enrollment. Enrollment in three or more classes was considered "fulltime."

Table 3.22

Enrollment in Postsecondary Education
Academy and Comparison Respondents at 27 Months

Group	N	Fulltime	Parttime	Not Enrolled at Time of Survey	Both Enrolled and Employed
Academy	24	8 (33%)	5 (21%)	11 (46%)	6 (25%)
Comparison	9	3 (33%)	4 (44%)	2 (22%)	3 (33%)

There was no statistically significant difference in enrollment patterns between the two groups, again, probably due to the small size of the Comparison group.

Tables 3.23 and 3.24 compare the enrollment patterns of Academy respondents at 3 and 27 months and at 15 and 27 months.

Table 3.23

Enrollment in Postsecondary Education by
Same Academy Respondents at 3 and 27 Months
(N=21)

Time	Fulltime	Parttime	Not Enrolled
3 months	7 (33%)	2 (10%)	12 (57%)
27 months	6 (29%)	5 (24%)	10 (48%)

Table 3.24

Enrollment in Postsecondary Education by
Same Academy Respondents at 15 and 27 Months
(N=19)

Time	Fulltime	Parttime	Not Enrolled
15 months	3 (16%)	8 (42%)	8 (42%)
27 months	7 (37%)	3 (16%)	9 (47%)

There was no significant shift in enrollment patterns for the Academy respondents at 3 and 27 months. However, for the 15 and 27 month respondents, the shift away from parttime enrollment was significant ($p < .05$).

Table 3.25 shows the type of postsecondary programs in which Academy and Comparison respondents were currently enrolled or in which they had been enrolled at some time during the 27 months since graduation. Program types are defined in the previous section (page 25).

Table 3.25

Type of Postsecondary Programs
Academy and Comparison Respondents
During First 27 Months after High School

Group	N	<u>Program Type</u>					Never Enrolled
		Miscellaneous	Certificate	Technical	AA	BA	
Academy	24	3 (13%)	2 (8%)	3 (13%)	12 (50%)	1 (4%)	3 (13%)
Comparison	9	2 (22%)	3 (33%)	0	1 (11%)	2 (22%)	1 (11%)

As Table 3.25 shows, the Academy graduates were mainly enrolled in Associate degree (community college) programs, while the Comparison graduates were more evenly distributed among the various program types. The difference in enrollment patterns approaches statistical significance ($p < .10$).

Educational aspirations. Table 3.26 compares the educational aspirations of Academy and Comparison respondents. The relevant questionnaire item asked respondents to check the highest educational level they expected to complete.

Table 3.26

Educational Aspirations
Academy and Comparison Respondents at 27 Months

Group	N	<u>Expected Highest Level of Education</u>					
		High School	Vo/Tech Certif.	2-Year Degree	4-Year Degree	Graduate Degree	Don't Know
Academy	24	0	2 (8%)	5 (21%)	10 (42%)	3 (13%)	4 (17%)
Comparison	9	1 (11%)	5 (56%)	1 (11%)	2 (22%)	0	0

The educational aspirations of the Academy graduates were significantly higher ($p < .05$) than those of the Comparison group, with over half of them (55%) expecting to complete a four-year degree or more, compared to 22% of the Comparison respondents. All of the Academy respondents expected to complete training beyond high school.

Table 3.27 compares the educational aspirations of the 1984 Academy graduates at 3 and 27 months after high school.

Table 3.27
Educational Aspirations of Same Academy Respondents
at 3 and 27 Months
(N=20)

Time	High School	AA or Certificate	4-Years or More	Don't Know
3 months	3 (15%)	1 (5%)	6 (30%)	10 (50%)
27 months	--	6 (30%)	11 (55%)	3 (15%)

The educational aspirations of this group appear not to have changed in any significant way over the 27 months since they left high school, even though of the 10 undecided respondents at 3 months, 7 aspired to a 4-year or more degree at 27 months. Also, many fewer respondents were undecided at 27 months than at 3 months, and those who had not expected to go beyond high school had raised their educational aspirations.

Retrospection on High School

High school preparation. Table 3.28 shows the ratings of their high school education by the Academy and Comparison respondents. Specifically, the survey asked how well respondents' high school courses had prepared them for the school or work they were presently doing 27 months after leaving high school.

Table 3.28

Ratings of High School Education
Academy and Comparison Respondents at 27 Months

Group	N	(1) Extremely Well	(2) Well	(3) Just OK	(4) Not Very Well	(5) Very Poorly	Average Rating
Academy	24	4 (17%)	12 (50%)	7 (29%)	1 (4%)	0	2.2
Comparison	9	2 (22%)	1 (11%)	4 (44%)	1 (11%)	1 (11%)	2.8

The differences between the groups were not statistically significant.

The ratings by the Academy group only at 15 and 27 months were stable, as Table 3.29 shows. The average rating of all 24 Academy respondents (class of 1984) at 15 months was 2.12 and at 27 months, 2.21. About 70% of respondents at both surveys gave ratings of "extremely well" or "well."

Table 3.29

Ratings by Same Academy Respondents of
High School Preparation, at 15 and 27 Months
(N=18)

Time	Extremely Well	Well	OK	Not Very Well	Very Poorly
15 months	4 (22%)	9 (50%)	4 (21%)	1 (6%)	--
27 months	4 (22%)	8 (44%)	5 (28%)	1 (6%)	

Employed respondents were asked if there were any skills they wished they had learned in high school that would help them now on their present jobs. Half of the Academy 27-month respondents replied affirmatively. The skills they wish they had acquired were:

- higher levels of mathematics (3 respondents)
- typing (2)
- better English skills (2)
- more experience in tool handling (electronics graduate) (1)
- more experience in diagram reading (electronics) (1)
- computer terminal experience (electronics) (1)
- wider experience with computer software (computer) (1)
- personal relations with employees (1)
- personal development (1)

Two of the five employed Comparison respondents said they wished they had taken more high school courses in mathematics and carpentry.

Pursuit of high school career goals. In order to discover if the Academy graduates continued to pursue the career plans they made in high school, we asked whether their current jobs were the sort they had planned on in high school; some respondents provided additional information on whether they were still preparing to enter that field in the future. Of the 17 respondents who were working, 47% said their job was the sort they had planned on in the Academy, and 53% said they were not. However, of the 21 respondents who gave information on continuing career plans, 71% continued to plan careers in either electronics or computer operations.

The 27-month Academy respondents were working for the following "high tech" companies: Hewlett-Packard, Lockheed Missiles & Space, Xerox Corporation, Varian Associates, Litton Industries, Artec Electronics, GTE Wesgo, and Dionex. Two respondents were in the military, two were working for insurance companies, and three were in other local businesses. The Academy and Comparison respondents were working at the occupations listed in Table 3.30.

Table 3.30

Occupations of Academy and Comparison Respondents at 27 Months
(N and %)

<u>Occupation</u>	<u>Academy (N=16)</u>	<u>Comparison (N=5)</u>
<u>Electronics</u>		
test technician	3 (19%)	
exhaust engineer technician	1 (6%)	
assembler	1 (6%)	
<u>Computer-related</u>		
data entry processor/operator	2 (13%)	
production control clerk	1 (6%)	
<u>Office</u>		
claims processor	1 (6%)	
secretary	1 (6%)	
clerk/typist		2 (40%)
<u>Retail trade</u>		
stock clerk	1 (6%)	1 (20%)
sales clerk	1 (6%)	
store manager	1 (6%)	
<u>Construction</u>		
laborer		1 (20%)
<u>Other Services</u>		
household mover	1 (6%)	
cosmetologist		1 (20%)
<u>Military service</u>	2 (13%)	

Job placement assistance. Of the 16 employed respondents from the Academy 27-month respondents, 7 (44%) had found their current jobs originally through the assistance of the Academies. Another 7 had found their jobs on their own, and the remaining 2 (13%) found their jobs with help from friends or family. Of the 5 employed Comparison group respondents to this survey, 3 had found their jobs on their own, 1 with the help of a college instructor, and 1 with help from a high school program.

Personal Achievement

Respondents were asked to rate themselves on how well they were doing in general since graduating from high school. The responses of the 24 Academy and 9 Comparison students are shown in Table 3.31. Differences are not statistically significant.

Table 3.31

Ratings of Personal Achievement Academy and Comparison Respondents at 27 Months							
Group	N	(1) Very Well	(2) Fairly Well	(3) Just OK	(4) Not Very Well	(5) Poorly	Average Rating
Academy	24	9 (38%)	10 (42%)	5 (21%)	0	0	1.83
Comparison	9	4 (44%)	4 (44%)	1 (11%)	0	0	1.67

Table 3.32 compares the self-ratings of the Academy respondents only at 15 and 27 months.

Table 3.32

Self-Ratings of Same Academy Respondents at 15 and 27 Months (N=18)					
Time	Very Well	Fairly Well	Just OK	Not Very Well	Poorly
15 months	9 (50%)	5 (28%)	3 (17%)	1 (6%)	--
27 months	7 (39%)	7 (39%)	4 (22%)	--	--

There were no significant changes in self-ratings during this period; at both 15 and 27 months, over three-quarters of the Academy graduates reported themselves to be doing "very well" or "fairly well."

Summary of Respondents' Advice to Current High School Students

The advice from the Academy and the Comparison groups was remarkably similar and focused on the same four areas:

- how to approach high school,
- course recommendations,
- planning for the future, and
- suggestions to school administrators and teachers.

How to approach high school. The Academy graduates' most frequent advice at both 15 and 27 months was to study seriously and get as much education as possible: "Read as much as possible," "Pay attention and learn all you can." Several commented that it's a competitive world after high school and "nothing is easy out there." Many respondents admonished students to attend regularly and stay in school. One advised students to get out of the Academy because it raised false expectations; but many others recommended students to stay in the program and take advantage of all it offers. They commented that the hard work will pay off, even if one later changes career goals.

Many respondents from both Academy and Comparison groups seemed to assume that most students are bored and discouraged with school and generally tempted to get away with doing as little as possible. "Stay in school and graduate" was the Comparison group's most frequent bit of advice. They also echoed the Academy group's advice to "Pay attention, study hard, and get as much out of school as you can." One Comparison graduate advised students not to be afraid to ask teachers, counselors, and administrators for help.

Course recommendations. Academy and Comparison group respondents agreed on their most frequent course recommendation: mathematics. An Academy graduate suggested that students take additional math as a senior year elective. A Comparison graduate noted that it was difficult for him to get into a desired apprenticeship program because he had not taken enough mathematics. Additional courses suggested by Academy students, in addition to more hands-on computer and electronics training, were: English, typing, science, and other "practical

courses like drafting." Comparison respondents recommended: typing and word processing, electronics, special vocational courses, business courses, economics, and "more English."

Planning for the future. Career planning was emphasized by many Academy graduates. They recommended that students become serious about exploring career possibilities and setting realistic goals. They cautioned students that work (after high school) will be hard at first, "but you have to start somewhere." Several graduates wrote of the value of setting career goals and working to realize them. One wrote, "Choose a profession and then work to acquire the skills you'll need, instead of letting your present level of skills choose your profession for you." Comparison graduates, too, suggested that students start now to give some thought to what they plan to do after high school. Several suggested that students plan on college and find out early about requirements. A number from both groups told students to set themselves a high goal and "go for it."

Suggestions to school administrators and teachers. Academy graduates gave two kinds of advice to Academy teachers: First, decide whether this program is meant to prepare students for fulltime employment, for postsecondary education, or both, and make this clear to students. If the program purports to prepare students for college, teachers should raise grading standards and offer more advanced levels of instruction for those who are ready. If, on the other hand, the program decides it is primarily job-oriented, teachers should counsel students who also want to prepare for college to take more advanced classes outside the program. Second, a small number of Academy graduates suggested that the program provide its graduates with more job placement assistance.

Two Comparison respondents also suggested that teachers make classes more demanding. For example, English teachers should assign more papers to prepare students for college, and all teachers should set higher standards, so that students know that in order to pass they must do more than simply attend. One respondent noted that most of her high school instructors did not appear to enjoy teaching. She wrote, "Teach with interest and enthusiasm and your students will be more interested."

IV. DISCUSSION AND CONCLUSIONS

Discussion of Findings

Employment Experience

Did the Academies have an effect on the participants' rate of employment, including number of hours worked and job longevity?

In general, no. The proportion of employed vs. unemployed, fulltime vs. parttime workers, and job seekers vs. non-seekers was approximately the same for the Academy and the Comparison groups. Among the first Academy graduating class, there was a shift over time from fulltime to parttime employment (probably related to shifting school enrollment patterns), but for the most part, the employment status of this group remained constant. The rate of employment was about 90% for all respondents. Similarly, there was no difference between groups in the average number of hours worked per week. However, in the 15-month cohort, the Academies had a positive effect on the number of hours worked by females, who were working about the same hours as the male Academy graduates, while in the Comparison group, female work hours lagged behind the males. Respondents from the two groups had worked for their current employers for about the same length of time. Thus, the main impact the Academies appear to have had on the graduates' rate of employment was to increase the number of hours worked by the female graduates. Otherwise, their employment experiences were not different from those of the Comparison group. Also, there were no differences between the experiences of minority group Academy graduates and those of either white Academy graduates or of non-Academy minority respondents.

Do Academy graduates have better jobs than Comparison youths, as measured by hourly and weekly wages, pay raises, job complexity, and type of job? And to what extent are members of each group pursuing their high school career plans?

Hourly earnings of Academy graduates were not significantly different from those of the Comparison graduates. The 15-month Academy cohort was earning about \$100 per month more on the average than the Comparison

respondents, but this difference is not statistically significant because of the wide variation in hourly wages and hours worked. Nevertheless, the difference is probably economically significant for the individuals involved. The Academy graduates had also received raises amounting to about \$.40 per hour more than the Comparison graduates, but, again, due to wide variation, this difference was probably due to chance alone.

At 15 months, many respondents from both groups had jobs that they considered temporary or stop-gap work while they were either attending school or saving up to do so. (Half of the Academy group and a third of the Comparison were working and going to school.) Nevertheless, 40% of the Academy group and only 23% of the Comparison were employed in the sort of jobs they had hoped to get when they were in high school. Classifying their jobs in terms of the DOT complexity indices, we find that Academy respondents at 15 months held more complex jobs in terms of working with "things." That is, their work involved manipulating and tending machines. In terms of "data," Academy males and females both had jobs where (on the average) they were compiling or computing, as did the Comparison group females. Comparison group males had significantly less complex jobs on this dimension. These results suggest that many Academy graduates find jobs commensurate with the technical focus of their studies.

The job complexity index analysis finding that Academy graduates held somewhat "better" or more technical jobs than the Comparison youths is supported by an examination of their job titles and descriptions. Over a third of the Academy 15-month group were employed in the computer/electronics industry, mainly in technically-oriented jobs, while only 6% of the Comparison respondents had such jobs. Categorizing the jobs differently, over two-fifths of the Academy group were employed in skilled or semi-skilled jobs, compared to less than one-fifth of the Comparison group, the majority of whom were employed in low-skilled and/or service jobs.

An incidental finding of the study was that, regardless of group, there was a large discrepancy between the earnings of males and females, with females earning about one-third less than males, even when their jobs were similar. In general, jobs were sex-typed. Of the 43 different civilian jobs reported at 15 months, only 7 were held by respondents of both sexes. Female

respondents mainly had desk jobs as typists, data entry processors, and receptionists, while males worked as stock clerks, deliverymen, technical operators, construction workers, and repairmen.

Has the first graduating class experienced significant advances in their jobs since 1984 in terms of wages, pay raises, and job complexity?

The 27-month Academy cohort reported highly significant hourly raises over the period since they finished high school. (Those who responded to the 27-month survey had gone from an average of \$5.04 per hour to \$7.34.) However, the types of jobs held by this group did not change significantly over the period. About two-thirds of them held skilled or semi-skilled jobs, and about half of them said they had the kind of jobs they had prepared for in the Academies. Thus, this small group seems to have been well launched by the Academy into the job market, where they have maintained their status and earned raises. Unfortunately, due to the small size of the Comparison sample, it is difficult to tell if the Academy graduates have done relatively better than they would have without the program.

Educational Experience

Did the Academies have an impact on its graduates' likelihood of pursuing postsecondary education?

The survey results do not offer a clearcut answer to this question. Significantly more Academy graduates than Comparison graduates had been enrolled in courses at some time since graduating from high school. However, at the time of the surveys, about the same proportion of the Academy and Comparison graduates were enrolled in some sort of educational program. At 27 months, female Academy graduates were far more likely to be enrolled than males.

What kinds of postsecondary education have graduates pursued compared to the Comparison group?

The preferred postsecondary institution for both Academy and Comparison respondents was the local community college--at 15 months, almost half of each group was enrolled in a two-year AA degree program. The main difference in

choice of institutions was that Academy graduates preferred technical colleges over other institutions. About 14% of all Academy respondents were enrolled in technical schools, compared to less than 3% of the Comparison group. This is a reasonable and expected outcome of a program that focuses on careers in computer operations and electronics.

What are the educational aspirations of Academy and Comparison youths?

At 15 months there was no difference in the educational aspirations of the Academy and Comparison respondents, with about 10% not aspiring to anything beyond high school, another 10% hoping to complete a graduate degree, and about 60% aspiring to complete either an AA or a BA degree. However, at 27 months (and despite the small Comparison sample), the educational aspirations of the Academy youths were significantly higher than the others. Over half of these Academy respondents expected to complete a four-year degree or more, and all wished to continue their education beyond high school.

How have the educational aspirations of the 1984 Academy graduates changed since they first left high school?

This group of graduates left the Academy with about the same high educational aspirations that they expressed again after 27 months. If anything, there was a change in the direction of higher aspirations, but the shift was not a statistically significant one. The Comparison group, on the other hand, lowered their expectations over the two-year period.

Usefulness of High School Training

Do the ratings of their high school education by Academy and Comparison group respondents differ, and if so, how?

There was a clear (and statistically significant) difference between the two groups' ratings of the preparation they received in high school for their present work or schooling. Twice as many Academy respondents as Comparison respondents at 15 months said they had been well or very well prepared in high school. Interestingly, many more Academy graduates than Comparison graduates mentioned that there were courses--notably mathematics--they now wish they had

taken in high school that would help them on their jobs. Since the Academy group's ratings of high school were higher, this apparent discrepancy may indicate that Academy graduates have higher expectations about what high school can offer. Or it may be that they expect more of themselves on the job than do their non-program contemporaries. Many Comparison respondents said that no additional course work would have helped them, because their current jobs required virtually no skills.

Were Academy graduates helped by the program to find jobs, and were the Comparison graduates given comparable assistance by their high schools?

Although the majority of respondents from both Academy and Comparison groups found their current jobs either on their own or with help from family and friends, 27% of the Academy respondents at 15 months named the Academies as their main source of job placement assistance. Only 15% of the Comparison graduates said their high schools had helped them find their jobs. Because of unforeseeable fluctuations in the job market, the Academies staff and the program's business supporters cannot guarantee job placement for graduates. Nevertheless, it appears that the Academies play a significant role in helping participants get started in the working world.

Self-appraisal

Is there a difference between the Academy and Comparison participants in their general sense of "doing well" since leaving high school?

In general, the Academy and Comparison respondents rated themselves similarly in terms of personal achievement. About 80% of each group said they were doing "well" or "very well" at both surveys; at 15 months only 3% and at 27 months none said they were not doing well. There was a significant group by sex variation in responses among the 15-month cohort, however. Comparison group males tended to rate themselves much poorer than the average, and Academy group males much better. Thus, the Academy program appears to have a positive effect on the self-esteem (or perhaps even on the objective achievement) of the male participants.

Is there a difference in self-appraisal of the 1984 graduates at 15 and 27 months after high school graduation?

No; the good opinion that Academy graduates held of their progress soon after high school held more or less constant at 27 months, after the respondents had spent over two years applying the skills they learned at the Academies to their jobs and postsecondary education.

Conclusions

In-school evaluations of the Peninsula Academies have already shown that the program is a definite assist to its participants during their high school years. The "bottom-line" question for the longitudinal study of graduates is whether at-risk youths are better off after high school as a result of the program.

Due to the conservative design of the longitudinal study (which did not take into consideration the probability that had it not been for the Academies experience, many of the students might have dropped out of school), the results may underestimate the positive effects of the program. The longitudinal study findings suggest that within a year or two after high school Academy and non-Academy graduates were performing about equally well on most measures of employment achievement, and their educational activities were also similar.

- Employment and earnings rates were not significantly higher for Academy than for the matched group of Comparison youths.
- At the time of each survey, about the same proportion of Academy and Comparison respondents were enrolled in an educational program.
- No differences were found on any measures between the responses of minority and non-minority respondents either within or across groups, suggesting that the Academies did not give minority group participants any special advantages after high school.

The longitudinal study findings also suggest that the Academies program benefits its participants in many ways. Among the positive impacts accruing to Academy graduates are the following.

- Academy graduates rated their high school training highly and felt well prepared for school and work.
- To a greater extent than the Comparison group, Academy graduates made long-range career plans and were helped by the program to find relevant entry-level jobs.
- Academy graduates were strongly motivated to work toward their goals, even when this meant alternating work and study or holding down full- or parttime jobs while going to school. To a greater extent than the Comparison group, they had been enrolled in postsecondary training at some time, they continued to hold their high educational aspirations, and planned to continue striving to meet their educational objectives.
- Female Academy graduates had a greater likelihood of working more hours per week, so that in one sense they held "better" jobs than they would have without the program. (One discouraging finding of the study was that for both Academy and Comparison respondents, females were earning about one-third less than males and had received smaller pay raises. These findings are consistent with national figures, which show that on the average women earn \$.64 to every \$1.00 earned by men.)
- Male Academy graduates benefited by having more complex jobs than non-program males. They also rated themselves significantly higher in terms of overall accomplishment since leaving high school.
- Finally, Academy graduates held technical and skilled jobs to a greater extent than they would have done without benefit of the program. Although many Comparison group respondents had jobs in retail trade or in the service sector that paid well, very few of them were part of the high technology industry which is the economic backbone of the San Francisco Peninsula. The skilled and semi-skilled jobs held by a large proportion of Academy graduates are evidence that the program is successful in opening up to these young people a pathway to jobs with a future, allowing them to participate in an economic sector which is vital to the well-being of the nation.

APPENDIX A

American Institutes for Research Reports on the Peninsula Academies

- Dayton, C.; Reeves, J.; & Rubin, D. (1982). The Peninsula Academies first yearly interim report. (AIR-20201-6/82-YIR [1])
- Reynolds (Reller), D., & Reeves, J. (1983). The Peninsula Academies second yearly interim report. (AIR-20201-6/83-YIR [2])
- Reynolds (Reller), D. (1984). Replication guide for the Peninsula Academies. (AIR-20201-1/84-RG)
- Reller, D. (1984). The Peninsula Academies final technical evaluation report. (AIR-20201-12/84-FR)
- American Institutes for Research. (1985). The Peninsula Academies...A school-business partnership experiment that worked.
- Reller, D. (1985). The Peninsula Academies interim evaluation report, 1984-85 school year. (AIR-40801-8/85-IER)
- Reller, D. (1985). The Peninsula Academies interim longitudinal report. (AIR-40801-11/85-ILR)
- Reller, D. (1986). The Peninsula Academies interim evaluation report, 1985-86 school year. (AIR-40801-7/86-IER)

ACADEMY POST-HIGH SCHOOL QUESTIONNAIRE

Date. _____

Questions 1-12 relate to your employment experience since you left high school.

1. Are you currently employed? (Check one)
☐ Yes ☐ No (If "No," skip to Question 12)
2. Where do you work?
 Name of employer/company: _____
 Type of business: _____
 (for example: "electronics manufacture" or "retail store")
3. What is your job title? _____
4. Briefly describe your main job responsibilities: _____
 (for example: "filing and typing" or "working cash register")
5. When did you start working for this employer?
 Start date: ____/____/____
 month day year
6. How did you obtain this job? (Check the one main method you used)
☐ On my own
☐ With help from my family or relatives
☐ With help from a friend
☐ With help from the Academy Program
☐ Other (Please describe: _____)
7. How many hours a week do you currently work? _____ hrs/wk
 (If your work week varies, please give average number hrs/wk)
8. What is your current hourly wage? \$ ____/hour (If you are not sure of your
 hourly wage, please give your weekly or monthly salary: \$ ____/____)
9. If your current salary is different from your starting salary at this company,
 what was your starting hourly wage? \$ ____/hour
10. Is your current job the sort you were preparing for and planning on in the
 Academy? (Check one)
☐ Yes ☐ No
 If "No," is it:
☐ Better ☐ Worse ☐ Just different
11. Are there skills you now wish you had acquired in high school, that would help
 in your job? (Check one)
☐ Yes ☐ No
 If "Yes," what are they?

12. If you are not currently employed, are you looking for employment? (Check one)
☐ Yes, I am looking for full-time work
☐ Yes, I am looking for part-time work
☐ No, I am not looking for work
 If yes, what kind of job are you seeking? _____

Questions 13-18 relate to your educational experience since leaving high school.

13. When did you graduate from high school?
 _____ Date _____ School _____
14. Are you enrolled in or have you taken any educational or vocational courses since leaving high school? (Check each that applies)
 _____ Currently enrolled _____ Neither current nor past enrollment
 _____ Have taken _____
15. If you have taken or are taking any courses, which of the following best describes these? (Check one)
 _____ One or a few courses not related to any degree
 _____ Certificate training program of one year or less
 _____ Two-year junior/community college program
 _____ Four-year college/university program
 _____ Other (Please describe: _____)
16. What is the name of the school or institution where you are (or were) enrolled?

17. If you are currently enrolled in any courses, is this part-time or full-time? (Check one)
 _____ Part-time (1 or 2 courses) _____ Full-time (3 or more courses)
18. What is the highest educational level you expect to complete? (Check one)
 _____ High school diploma or GED _____ Bachelor's degree (four-year)
 _____ Vocational/technical certificate _____ M.A. or Ph.D.
 _____ Associate degree (two-year)
 _____ Other: _____
19. As you look back over your high school years, how well do you think your Academy courses prepared you for the work or schooling you are now doing? (Check one)
 _____ Extremely well _____ Not very well
 _____ Well _____ Very poorly
 _____ Just O.K. (or well in some ways and poorly in others)
20. How would you rate yourself on how well you are doing since graduation? (Check one)
 _____ Very well _____ Not very well
 _____ Fairly well _____ Very poorly
 _____ Just O.K.
21. If there is one message you would like to give to current high school students, what would it be?

THANK YOU FOR YOUR PARTICIPATION.

Please return your completed questionnaire by October 1, 1986, using the stamped, addressed envelope provided.

POST-HIGH SCHOOL QUESTIONNAIRE

Date: _____

Questions 1-12 relate to your employment experience since you left high school.

1. Are you currently employed? (Check one)
☐ Yes ☐ No (If "No," skip to Question 12)
2. Where do you work?
Name of employer/company: _____
Type of business: _____
(for example: "electronics manufacture" or "retail store")
3. What is your job title? _____
4. Briefly describe your main job responsibilities: _____
(for example: "filing and typing" or "working cash register")
5. When did you start working for this employer?
Start date: _____ / _____ / _____
month day year
6. How did you obtain this job? (Check the one main method you used)
☐ On my own
☐ With help from my family or relatives
☐ With help from a friend
☐ Other (Please describe: _____)
7. How many hours a week do you currently work? _____ hrs/wk (If your work week varies, please give average number hrs/wk)
8. What is your current hourly wage? \$ _____ /hour (If you are not sure of your hourly wage, please give your weekly or monthly salary: \$ _____ / _____)
9. If your current salary is different from your starting salary at this company, what was your starting hourly wage? \$ _____ /hour
10. Is your current job the sort you were preparing for and planning on in high school? (Check one)
☐ Yes ☐ No
If "No," is it:
☐ Better ☐ Worse ☐ Just different
11. Are there skills you now wish you had acquired in high school, that would help you in your job? (Check one)
☐ Yes ☐ No
If "Yes," what are they?

12. If you are not currently employed, are you looking for employment? (Check one)
☐ Yes, I am looking for full-time work
☐ Yes, I am looking for part-time work
☐ No, I am not looking for work
If yes, what kind of job are you seeking? _____

Questions 13-18 relate to your educational experience since leaving high school.

13. Do you have a high school diploma or a GED certificate? (Check one and write date received)
- _____ Diploma: _____ GED certificate: _____ Neither
 _____ Date _____ Date
14. Are you enrolled in or have you taken any educational or vocational courses since leaving high school? (Check each that applies)
- _____ Currently enrolled _____ Neither current nor past enrollment
 _____ Have taken
15. If you have taken or are taking any courses, which of the following best describes these? (Check one)
- _____ One or a few courses not related to any degree
 _____ Certificate training program of one year or less
 _____ Two-year junior/community college program
 _____ Four-year college/university program
 _____ Other (Please describe: _____)
16. What is the name of the school or institution where you are (or were) enrolled?

17. If you are currently enrolled in any courses, is this part-time or full-time? (Check one)
- _____ Part-time (1 or 2 courses) _____ Full-time (3 or more courses)
18. What is the highest educational level you expect to complete? (Check one)
- _____ High school diploma or GED _____ Bachelor's degree (four-year)
 _____ Vocational/technical certificate _____ M.A. or Ph.D.
 _____ Associate degree (two-year)
 _____ Other: _____
19. As you look back over your high school years, how well do you think your courses prepared you for the work or schooling you are now doing? (Check one)
- _____ Extremely well _____ Not very well
 _____ Well _____ Very poorly
 _____ Just O.K. (or well in some ways and poorly in others)
20. How would you rate yourself on how well you are doing since graduation? (Check one)
- _____ Very well _____ Not very well
 _____ Fairly well _____ Very poorly
 _____ Just O.K.
21. If there is one message you would like to give to current high school students, what would it be?
- _____

THANK YOU FOR YOUR PARTICIPATION.

Please return your completed questionnaire by October 1, 1986, using the stamped, addressed envelope provided.

BIBLIOGRAPHY

- Bishop, J. (1985). Preparing youth for employment. Columbus, OH: The National Center for Research in Vocational Education.
- Borus, M. E., Crowley, J. E., Rumberger, R. W., Santos, R., & Shapiro, D. (1980). Pathways to the future: A longitudinal study of young Americans. Preliminary report: Youth and the labor market - 1979. Columbus, OH: Center for Human Resource Research, The Ohio State University.
- Burtless, G. (1984). Manpower policies for the disadvantaged: What works? The Brookings Review, 3 (1), 18-22.
- Dayton, C., Reller, D., & Evans, J. (1987). Peninsula Academies replications: 1985-86 evaluation report (PC-87-1-1-WFHF). Berkeley, CA: Policy Analysis for California Education (PACE).
- Keen, J. (1986, March 10). Who drops out of school? The Stockton Record.
- MDC, Inc. (1983). Institutionalizing the school-to-work transition (A report prepared for the Ford Foundation). Chapel Hill, NC: Author.
- Meyer, R. H., & Wise, D. A. (1982). High school preparation and early labor force experience. In R. B. Freeman & D. A. Wise (Eds.) The Youth Labor Market Problem. Chicago: University of Chicago Press.
- The National Center of Research in Vocational Education. (1984). High school preparation for employment. Columbus: NCRVE, Ohio State University.
- New data show dropouts, blacks, older youths in most need of employment aids. (1984). Employment and Training Reporter, 15 (37), 993-995.
- Nolfi, G. J., Fuller, W. C., Corazzini, A. J., Epstein, W. H., Freeman, R. B., Manski, C. F., Nelson, V. I., & Wise, D. A. (1978). Experiences of recent high school graduates: The transition to work or postsecondary education. Lexington, MA: Lexington Books.
- Paul, K. K. (1976). What happens after training: A review of follow-up of vocational graduates. Nashville, TN: The Urban Observatory of Metropolitan Nashville and University Centers.
- Public/Private Ventures. (1983). Longer term impacts of pre-employment services on the employment and earnings of disadvantaged youth. Philadelphia: Author.
- Redfering, D. L., & Cook, D. (1980). Relationships among vocational training, income, and job complexity of high school dropouts and high school graduates. Journal of Vocational Behavior, 16, 150-162.

- Rumberger, R. W., & Daymont, T. N. (1984). The economic value of academic and vocational training acquired in high school. In Borus, M. E. (Ed.) Youth and the Labor Market. Kalamazoo, MI: W. E. Upjohn Institute for Employment Research.
- Shugoll, M., & Helms, T. (1982). Cost-benefit analysis of vocational education: Problems and strategies. Journal of Vocational Education Research, Spring, VII (2), 31-43.
- Staff. (1984, July). Sonoma high school program emphasizes jobs, reduces dropout rate. Work America, 1 (10), p. 9.
- Staff (1985, October). JTPA performance data. Work America, 2 (11), p. 2.
- U. S. Department of Labor. (1977). Dictionary of Occupational Titles. Washington, DC: U.S. Government Printing Office.
- Weisberg, A. (1983, January). What research has to say about vocational education and the high schools. Phi Delta Kappan, pp. 355-359.
- Youth Subcommittee, California State Job Training Coordinating Council. (1985). Tomorrow's workers at risk: Combating labor market failure among California's youth. Sacramento: Author.